

Attachment 3  
Inspection Checklists

**BROOKHAVEN NATIONAL LABORATORY  
CURRENT LANDFILL AREA  
SITE INSPECTION FORM**

Name of Inspector(s): E. Kramer, W. Dorsch V. Racaniello,  
T. Kneitel, R. Howe

Date of Inspection: April 4, 2005

Purpose of Inspection:  Routine  Heavy Rainfall  Reported Incident

Time on Site: 1310 hours

Time off Site: 1350 hours

Weather Conditions: Cool, sunny

**A. Inspection Checklist**

Component	Observed Condition			Further Action Required	
	Excellent	Fair	Poor	Yes	No
1.0 Landfill Cap					
Vegetation	X				X
Cap		X		X	
Gas Vents	X				X
2.0 Drainage Structures:					
Toe Drain		X		X	
Drainage Channels		X		X	
French Drains/Outfalls	X				X
Subsurface Drainage Pipes/Outfalls	X				X
Manholes	X				X
Recharge Areas	X				X
3.0 Monitoring System:					
Soil Gas Wells	X				X
Groundwater Wells	X				X
4.0 Site Access					
Asphalt Access Road	X				X
Crushed-Concrete Access Road	X				X

**B. Description of Further Action Requirements:**

1. Location:

Observed Conditions: 1) Weeds in drainage channels, 2) animal burrowing holes along south and east slopes, 3) netting on north and east slopes showing through in some areas, 4) BNL contacts on green emergency placard out of date, 5) lock missing from Brookhaven Ave gate, and south gate is broken (can't latch).

Recommendations: 1 and 2) Have PE Grounds perform weed trimming and fill in holes, 3) evaluate need to seed or fill in areas with netting visible, 4) Modify green placard to reflect LTRA ownership, 5) Get lock and have PE grounds fix south gate.

**BROOKHAVEN NATIONAL LABORATORY  
FORMER LANDFILL AREA  
SITE INSPECTION FORM**

Name of Inspector(s): E. Kramer, W. Dorsch V. Racaniello,  
R. Howe

Date of Inspection: April 4, 2005

Purpose of Inspection:  Routine  Heavy Rainfall  Reported Incident

Time on Site: 1355 hours

Time off Site: 1420 hours

Weather Conditions: Cool, sunny

**A. Inspection Checklist**

	Component	Observed Condition			Further Action Required	
		Excellent	Fair	Poor	Yes	No
1.0	Landfill Cap					
	Vegetation	X				X
	Cap	X				X
	Gas Vents	X				X
2.0	Drainage Structures:					
	Toe Drain	X				X
	Drainage Channels	X				X
	French Drains/Outfalls	X				X
	Subsurface Drainage Pipes/Outfalls	X				X
	Manholes	X				X
	Recharge Areas	X				X
3.0	Monitoring System:					
	Soil Gas Wells	X				X
	Groundwater Wells	X				X
4.0	Site Access					
	Asphalt Access Road	X				X
	Crushed-Concrete Access Road	X				X

**B. Description of Further Action Requirements:**

2. Location:

Observed Conditions: Conditions normal

Recommendations: None



1.	<b>O&amp;M Documents</b>	<input checked="" type="checkbox"/> O&M manual	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
		<input checked="" type="checkbox"/> As-built drawings	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
		<input type="checkbox"/> Maintenance logs	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input type="checkbox"/> N/A
Remarks: The OU I/RA V, Industrial Park, and the Sr-90 Chemical Holes O&M Manuals are in the process of being updated. The as-built drawings are available through Plant Engineering's database.					
<hr/>					
2.	<b>Site-Specific Health and Safety Plan</b>		<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	<input checked="" type="checkbox"/> Contingency plan/emergency response plan		<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
Remarks: Each project has a H&S Plan and Work Permit specific to that job. The operating groundwater treatment systems have a contingency/emergency plan in their O&M Manuals.					
<hr/>					
3.	<b>O&amp;M and OSHA Training Records</b>		<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
Remarks _____					
<hr/>					
4.	<b>Permits and Service Agreements</b>				
	<input checked="" type="checkbox"/> Air discharge permit		<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	<input checked="" type="checkbox"/> Effluent discharge		<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	<input type="checkbox"/> Waste disposal, POTW		<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	<input checked="" type="checkbox"/> Other permits: Peconic, FHWMF		<input checked="" type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input type="checkbox"/> N/A
Remarks: DEC air and SPDES equivalency permits in place for all treatment systems, as appropriate. Peconic Phase 1 and Off-site equivalency permits in place.					
<hr/>					
5.	<b>Gas Generation Records</b>		<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
Remarks _____					
<hr/>					
6.	<b>Groundwater Monitoring Records</b>		<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
Remarks: Groundwater monitoring data is made available via the Quarterly System Operations Reports, as well as the Annual Groundwater Status Report.					
<hr/>					
7.	<b>Discharge Compliance Records</b>				
	<input checked="" type="checkbox"/> Air		<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	<input checked="" type="checkbox"/> Water (effluent)		<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
Remarks: Discharge Monitoring Reports (DMRs) for the treatment systems with SPDES equivalency permits are issued monthly to the DEC. Air compliance records are documented in the Annual Groundwater Status Reports.					
<hr/>					
8.	<b>Daily Access/Security Logs</b>		<input checked="" type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input type="checkbox"/> N/A
Remarks: Daily operating data sheets for the groundwater systems are available at the treatment building and the Project files.					
<hr/>					
9.	<b>Comments</b>	_____			
_____					
_____					



1. **Implementation and enforcement**  
 Site conditions imply ICs not properly implemented  Yes  No  N/A  
 Site conditions imply ICs not being fully enforced  Yes  No  N/A

Type of monitoring (e.g., self-reporting, drive by): Routine inspections of landfills and groundwater treatment systems \_\_\_\_\_  
 Frequency: Varies from almost daily for treatment systems to monthly for landfills.

Responsible party/agency: BSA under contract with DOE.

Contact: William Dorsch	BSA LTRA Manager	3/21/05	(631) 344-5186
Gail Penny	DOE Project Manager	3/21/05	(631) 344-4363
Name	Title	Date	Phone no.

Reporting is up-to-date  Yes  No  N/A  
 Reports are verified by the lead agency  Yes  No  N/A

Specific requirements in deed or decision documents have been met  Yes  No  N/A  
 Violations have been reported  Yes  No  N/A

Other problems or suggestions: G Report attached

Remarks: There are seven access agreements in place among BSA/DOE and various property owners to allow for BNL's remediation of groundwater contamination that has migrated beyond the BNL property. Each agreement has terms and conditions that must be adhered to.

\_\_\_\_\_

\_\_\_\_\_

2. **Adequacy**  ICs are adequate  ICs are inadequate  N/A  
 Remarks: The Land Use Controls Management Plan and institutional controls website and fact sheets are currently being updated to reflect the most recent IC's for each project.

\_\_\_\_\_

**D. General**

1. **Vandalism/trespassing**  Location shown on site map  No vandalism evident  
 Remarks: There has been some vandalism in the past at some of the treatment systems located beyond the BNL property. However, additional precautions have been implemented such as security cameras, motion detectors, and fencing to help minimize the potential risk. \_\_\_\_\_

2. **Land use changes on site**  N/A  
 Remarks: None \_\_\_\_\_

3. **Land use changes off site**  N/A  
 Remarks: None \_\_\_\_\_

**VI. GENERAL SITE CONDITIONS**

**A. Roads**  Applicable  N/A

1. **Roads damaged**  Location shown on site map  Roads adequate  N/A  
 Remarks: \_\_\_\_\_

**B. Other Site Conditions**

Remarks: \_\_\_\_\_





**VII. SOIL CLEANUP REMEDIES**    Applicable    N/A

**A. Project OUI AOC 6 Bldg. 650 Sump Outfall 3/29/05**

1. **Soil Excavation Complete**    Yes    No

Remarks \_\_\_\_\_

2. **S&M Documents**

- |  |   |                                     |   |
|--|---|-------------------------------------|---|
| <input type="checkbox"/> S&M Plan                              | <input type="checkbox"/> Readily available            | <input type="checkbox"/> Up to date | <input type="checkbox"/> N/A            |
| <input checked="" type="checkbox"/> Completion/Closeout Report | <input checked="" type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input type="checkbox"/> N/A            |
| <input type="checkbox"/> Maintenance logs                      | <input type="checkbox"/> Readily available            | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |

Remarks: Draft Final Closeout Report for AOC 6 Bldg. 650 Sump and Sump Outfall, dated 1/02. No specific LTRA monitoring was identified, however, there are some lessons learned presented.

3. **Settlement (Low spots)**    Location shown on site map    Settlement not evident  
 Areal extent \_\_\_\_\_   Depth \_\_\_\_\_

Remarks: The entire area is graded and a drainage swale exists that routes surface runoff to the ponded sump. The pond has been staying wet year round.

4. **Erosion**    Location shown on site map    Erosion not evident  
 Areal extent \_\_\_\_\_   Depth \_\_\_\_\_

Remarks: See above.

5. **Vegetative Cover**    Grass    Cover properly established    No signs of stress  
 Trees/Shrubs (indicate size and locations on a diagram)

Remarks: Some trees surround the sump. Native grass cover dormant at this time.

6. **Wet Areas/Water Damage**

- |   |   |                    |
|---|---|--------------------|
| <input type="checkbox"/> Wet areas          | <input type="checkbox"/> Location shown on site map | Areal extent _____ |
| <input checked="" type="checkbox"/> Ponding | <input type="checkbox"/> Location shown on site map | Areal extent _____ |
| <input checked="" type="checkbox"/> Seeps   | <input type="checkbox"/> Location shown on site map | Areal extent _____ |
| <input type="checkbox"/> Soft subgrade      | <input type="checkbox"/> Location shown on site map | Areal extent _____ |

Remarks: See above

7. **Monitoring Wells (within the excavated area)**

- |   |   |  |   |
|---|---|--|---|
| <input type="checkbox"/> Properly secured/locked            | <input type="checkbox"/> Functioning                  | <input type="checkbox"/> Routinely sampled | <input type="checkbox"/> Good condition |
| <input type="checkbox"/> Evidence of leakage at penetration | <input checked="" type="checkbox"/> Needs Maintenance | <input type="checkbox"/> N/A               |   |

Remarks: Three monitoring wells were abandoned within the ponded areas during the excavation work. Stick-up casings and concrete lying along fence need to be properly disposed of. (Former wells 066-6, 066-10, and 066-18).

8. **Other Site Conditions**

Remarks: Inspection attendees include W. Dorsch, V. Racaniello, T. Doyle, T. Kneitel, R. Howe. Heavy rains day before inspection. Recommendations: Properly dispose of well covers/concrete and pallets lying near road. A few signs are posted identifying subsurface radiological contaminated soils. Fence partially surrounds the former sump outfall (no restrictions for entering area).

**VII. SOIL CLEANUP REMEDIES**    Applicable    N/A

**A. Project**   **OUI AOC 16S Landscape Soil Area (at Brookhaven Center front lawn)**   3/29/05

1.   **Soil Excavation Complete**    Yes    No

Remarks \_\_\_\_\_

2.   **S&M Documents**

- |  |   |                                     |   |
|--|---|-------------------------------------|---|
| <input type="checkbox"/> S&M Plan                              | <input type="checkbox"/> Readily available            | <input type="checkbox"/> Up to date | <input type="checkbox"/> N/A            |
| <input checked="" type="checkbox"/> Completion/Closeout Report | <input checked="" type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input type="checkbox"/> N/A            |
| <input type="checkbox"/> Maintenance logs                      | <input type="checkbox"/> Readily available            | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |

Remarks: Final Closeout Report for AOC 16 Landscape Soils, dated 4/10/01. No specific LTRA monitoring was identified, however, there are some lessons learned present

3.   **Settlement (Low spots)**

Areal extent \_\_\_\_\_    Location shown on site map    Settlement not evident

Depth \_\_\_\_\_

Remarks \_\_\_\_\_

4.   **Erosion**

Areal extent \_\_\_\_\_    Location shown on site map    Erosion not evident

Depth \_\_\_\_\_

Remarks \_\_\_\_\_

5.   **Vegetative Cover**

Grass    Cover properly established    No signs of stress

G Trees/Shrubs (indicate size and locations on a diagram)

Remarks \_\_\_\_\_

6.   **Wet Areas/Water Damage**

- |  |   |                    |
|--|---|--------------------|
| <input checked="" type="checkbox"/> Wet areas/water damage not evident | <input type="checkbox"/> Location shown on site map | Areal extent _____ |
| <input type="checkbox"/> Wet areas                                     | <input type="checkbox"/> Location shown on site map | Areal extent _____ |
| <input type="checkbox"/> Ponding                                       | <input type="checkbox"/> Location shown on site map | Areal extent _____ |
| <input type="checkbox"/> Seeps   | <input type="checkbox"/> Location shown on site map | Areal extent _____ |
| <input type="checkbox"/> Soft subgrade                                 | <input type="checkbox"/> Location shown on site map | Areal extent _____ |

Remarks \_\_\_\_\_

7.   **Monitoring Wells (within the excavated area)**

- |   |  |  |   |
|---|--|--|---|
| <input type="checkbox"/> Properly secured/locked            | <input type="checkbox"/> Functioning       | <input type="checkbox"/> Routinely sampled | <input type="checkbox"/> Good condition |
| <input type="checkbox"/> Evidence of leakage at penetration | <input type="checkbox"/> Needs Maintenance | <input checked="" type="checkbox"/> N/A    |   |

Remarks \_\_\_\_\_

8.   **Other Site Conditions**

Remarks: Inspection attendees include W. Dorsch, V. Racaniello, T. Doyle, T. Kneitel, R. Howe. No recommendations.

**VII. SOIL CLEANUP REMEDIES**    Applicable    N/A

**A. Project AOC 9 BGRR Soil and Canal Excavation 4/18/05**

1.    **Soil Excavation Complete**    Yes    No

Remarks: The duct service building will come down following removal of the pile.

2.    **S&M Documents**

- |   |  |                                     |                              |
|---|--|-------------------------------------|------------------------------|
| <input type="checkbox"/> S&M Plan                   | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input type="checkbox"/> N/A |
| <input type="checkbox"/> Completion/Closeout Report | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input type="checkbox"/> N/A |
| <input type="checkbox"/> Maintenance logs           | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input type="checkbox"/> N/A |

Remarks: S&M Plan will need to be developed. \_\_\_\_\_

3.    **Settlement** (Low spots)                       Location shown on site map     Settlement not evident  
 Areal extent \_\_\_\_\_                      Depth \_\_\_\_\_

Remarks: In May 2005, a temporary asphalt cap will be installed at former hot spot soil excavation areas. A final engineered cap will be installed following completion of the pile removal.

4.    **Erosion**     Location shown on site map     Erosion not evident  
 Areal extent \_\_\_\_\_                      Depth \_\_\_\_\_

Remarks \_\_\_\_\_  
 \_\_\_\_\_

5.    **Vegetative Cover**                       Grass                       Cover properly established     No signs of stress  
 G Trees/Shrubs (indicate size and locations on a diagram)

Remarks \_\_\_\_\_  
 \_\_\_\_\_

6.    **Wet Areas/Water Damage**                       Wet areas/water damage not evident

<input type="checkbox"/> Wet areas	<input type="checkbox"/> Location shown on site map	Areal extent _____
<input type="checkbox"/> Ponding	<input type="checkbox"/> Location shown on site map	Areal extent _____
<input type="checkbox"/> Seeps	<input type="checkbox"/> Location shown on site map	Areal extent _____
<input type="checkbox"/> Soft subgrade	<input type="checkbox"/> Location shown on site map	Areal extent _____

Remarks \_\_\_\_\_  
 \_\_\_\_\_

7.    **Monitoring Wells** (within the excavated area)

<input type="checkbox"/> Properly secured/locked	<input checked="" type="checkbox"/> Functioning	<input checked="" type="checkbox"/> Routinely sampled	<input type="checkbox"/> Good condition
<input type="checkbox"/> Evidence of leakage at penetration	<input type="checkbox"/> Needs Maintenance	<input type="checkbox"/> N/A	

Remarks \_\_\_\_\_  
 \_\_\_\_\_

8.    **Other Site Conditions**

Remarks: Inspection attendees include W. Dorsch, V. Racaniello, E. Kramer, M. Parsons, F. Petschauer, V. Peterson (DOE), R. Howe. Toured outside soil excavation areas (including canal), canal inside building, reactor area. Once S&M is transferred to LTRA in a few years, inspections will include areas of potential water intrusion. We should tour the below ground ducts next week. No recommendations.

<b>VII. SOIL CLEANUP REMEDIES</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A	
<b>A. Project</b> <b>OU I AOC 1 Hazardous Waste Management Facility (HWMF)</b> 5/23/05_____	
1.	<b>Soil Excavation Complete</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Remarks: About 75% complete with excavation, expected to be done by mid June 2005. Following ORISE confirmatory sampling, then backfill, grade, and seed.
2.	<b>S&amp;M Documents</b> <input checked="" type="checkbox"/> S&M Plan <input type="checkbox"/> Readily available <input type="checkbox"/> Up to date <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Completion/Closeout Report <input type="checkbox"/> Readily available <input type="checkbox"/> Up to date <input type="checkbox"/> N/A <input type="checkbox"/> Maintenance logs <input type="checkbox"/> Readily available <input type="checkbox"/> Up to date <input type="checkbox"/> N/A Remarks: The Draft OU I Soils and OU V Long-Term Monitoring and Maintenance Plan, dated 5/13/05, is undergoing internal review. The Closeout Report has not yet been prepared.
3.	<b>Settlement</b> (Low spots) <input checked="" type="checkbox"/> Location shown on site map <input type="checkbox"/> Settlement not evident Areal extent_____                    Depth_____ Remarks: There are many low spots in the area since the excavation is in progress. It will be mitigated once backfilling is complete.
4.	<b>Erosion</b> <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Erosion not evident Areal extent_____                    Depth_____ Remarks: There is evidence of erosion throughout the area from the excavation. It will be mitigated once backfilling is complete.
5.	<b>Vegetative Cover</b> <input type="checkbox"/> Grass <input type="checkbox"/> Cover properly established <input type="checkbox"/> No signs of stress <input checked="" type="checkbox"/> Trees/Shrubs (indicate size and locations on a diagram) Remarks: Trees still present in the middle of the yard. Some may still be removed during the remaining excavation. Rest of the area is bare due to excavation not yet complete. Will be seeded once complete.
6.	<b>Wet Areas/Water Damage</b> <input checked="" type="checkbox"/> Wet areas/water damage not evident <input type="checkbox"/> Wet areas <input type="checkbox"/> Location shown on site map    Areal extent_____ <input type="checkbox"/> Ponding <input type="checkbox"/> Location shown on site map    Areal extent_____ <input type="checkbox"/> Seeps <input type="checkbox"/> Location shown on site map    Areal extent_____ <input type="checkbox"/> Soft subgrade <input type="checkbox"/> Location shown on site map    Areal extent_____ Remarks: During the winter/early spring wet ponded areas existed in several locations. Additional mitigative measures were taken. Wet areas were not evident at time of inspection due to dry weather for last two weeks. The wetland area immediately to the northwest of the FHWMF was mostly dry.
7.	<b>Monitoring Wells</b> (within the excavated area) <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> Evidence of leakage at penetration <input checked="" type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks: Could not see the monitoring wells within the fenced area sine the tour was on the perimeter. There is a good chance that some of the wells may need to be abandoned or removed if they are within the planned excavation area. Wells just outside the excavation area are secure and locked.
8.	<b>Other Site Conditions</b> Remarks: Inspection attendees include W. Dorsch, V. Racaniello, J. Burke, M. Pizzulli (PW Grosser), T. Kneitel, J. Coaxum (DOE FR), R. Howe. The soil cleanup goal is 67 pCi/g for Cs-137 (industrial land use). Additional work remains in the main excavation area, as well as restoration of the wetlands, and completion of the leaching field excavation to the west of the FHWMF. There is a buried 5,000 gal. UST to the west of the FHWMF. It is a previously used water tank for fire protection per M. Clancy. J. Remien wants someone to pull it since it's not used anymore (it's a SCDHS registered tank). Four, fifty-five gallon drums need to be labeled near the main gate (3 empty, and 1 contains sand for excavator). The drums were subsequently labeled accordingly.





**VII. SOIL CLEANUP REMEDIES**    Applicable    N/A

Location (AOC):           OU III AOC 26B Building 96\_\_\_\_\_

Date of Inspection:       10/27/05\_\_\_\_\_

Name of Inspector(s):    R. Howe, K. Conkling, R. Travis, P. Sullivan, R. Lee, K. Klaus

Purpose of Inspection:     Routine (Scheduled Freq of )    Heavy Rainfall    Reported Incident

**A.     Inspection Checklist**

Component	Observed Condition				Further Action Req'd	
	Excell.	Fair	Poor	Not Applic.	Yes (describe)	No
<b>1.     Landfill Cap/Soil Covers/ Wetlands:</b>						
Vegetation (e.g. grass)		X			Check grass growth in spring, possible reseed	
Soil (Cap/Cover/Fill)		X				
Other: _____					Some minor erosion near culvert	
<b>2.     Drainage Structures:</b>						
Standing Water				X		X
Toe Drain				X		X
Drainage Channels	X					X
French Drains/Outfalls				X		X
Subsurface Drainage				X		X
Pipes/Outfalls				X		X
Manholes				X		X
Berms				X		X
Roof Drains				X		X
Recharge Areas		X			Remove once grass is established	
Other: <u>Silt Fence</u>						
<b>3.     Monitoring System:</b>						
Soil Gas Wells				X		X
Groundwater Wells	X					X
Gas Vents				X		X
Other: _____						
<b>4.     Site Access:</b>						
Asphalt Access Road				X		X
Crushed-concrete Access Road		X				X
Fence				X		X
Gates/locks				X		X
Radiological Postings				X		X
Other: _____						

5.     Evidence of unauthorized work activities and/or unauthorized access has occurred?    Yes    No  
        If yes, describe evidence:

**B.     Description of Other Observations**

Observed Conditions/Recommendations: Weeds need to be cut, including the Jimson Weed just west of drainage channel. As a best management practice, add sign at the entrance that LUICs in place, and for further info to contact LTRA at x2828. Check contents of the Zebra connex. Is KMnO4 being stored and is the oxidizer sign adequate? Check the Chemical Management System inventory (Bob Petricek or Divine Adika). Modify OU I Soils and OU V LongTerm Monitoring Plan to reflect additional inspections during significant rain events.

**VII. SOIL CLEANUP REMEDIES**    Applicable    N/A

Location (AOC):                   OU I AOC 2B Former Chemical Holes (includes Animal Pits and Glass Holes)  
 Date of Inspection:            11/9/05 \_\_\_\_\_  
 Name of Inspector(s):         R. Howe, K. Conkling, R. Travis, P. Sullivan  
 Purpose of Inspection:        Routine (Scheduled Freq of \_\_\_\_ )    Heavy Rainfall    Reported Incident

**A.        Inspection Checklist**

Component	Observed Condition				Further Action Req'd	
	Excell.	Fair	Poor	Not Applic.	Yes (describe)	No

**1.        Landfill Cap/Soil Covers/Wetlands:**

Vegetation (e.g. grass)			X			
Soil (Cap/Cover/Fill)	X				Seed in spring '06	
Other: _____					Spread fill fall '06	

**2.        Drainage Structures:**

Standing Water				X		X
Toe Drain				X		X
Drainage Channels				X		X
French Drains/Outfalls				X		X
Subsurface Drainage				X		X
Pipes/Outfalls				X		X
Manholes				X		X
Berms				X		X
Roof Drains				X		X
Recharge Areas						
Other: _____						

**3.        Monitoring System:**

Soil Gas Wells				X		X
Groundwater Wells	X					X
Gas Vents				X		X
Other: _____						

**4.        Site Access:**

Asphalt Access Road				X		X
Crushed-concrete Access Road	X					X
Fence				X		X
Gates/locks	X				Remove south gate	
Radiological Postings				X		X
Other: Signs	X				Remove danger signs	

**5.**        Evidence of unauthorized work activities and/or unauthorized access has occurred?    Yes    No  
 If yes, describe evidence:

**B.        Description of Other Observations**

Observed Conditions/Recommendations: Jersey Barriers are still needed to protect the drop off at the end of the rail car loading ramp (this is an action item for EM from the ERE final walkdown. Note: there are several barriers available at the STP old settling basins). Remove the existing signs (danger and keep out), and the gate at the south entrance to the Chemical Holes area. LUIC Fact Sheet Notes: Under Current Conditions, add the Cesium-137 and mercury residual levels. The map of the area needs to be revised to reflect the former Glass Holes as a soil remediation complete area.



5.	<p><b>Treatment Building(s)</b></p> <p><input type="checkbox"/> N/A      <input checked="" type="checkbox"/> Good condition (esp. roof and doorways)      <input type="checkbox"/> Needs repair</p> <p><input type="checkbox"/> Chemicals and equipment properly stored</p> <p>Remarks: Airport building area needs to be paved.</p> <p>_____</p>
6.	<p><b>Monitoring Wells</b> (pump and treatment remedy)</p> <p><input checked="" type="checkbox"/> Properly secured/locked      <input checked="" type="checkbox"/> Functioning      <input checked="" type="checkbox"/> Routinely sampled      <input checked="" type="checkbox"/> Good condition</p> <p><input checked="" type="checkbox"/> All required wells located      <input type="checkbox"/> Needs Maintenance      <input type="checkbox"/> N/A</p> <p>Remarks _____</p> <p>_____</p>
<b>D. Monitoring Data</b>	
1.	<p>Monitoring Data</p> <p><input checked="" type="checkbox"/> Is routinely submitted on time      <input checked="" type="checkbox"/> Is of acceptable quality</p>
2.	<p>Monitoring data suggests:</p> <p><input checked="" type="checkbox"/> Groundwater plume is effectively contained      <input type="checkbox"/> Contaminant concentrations are declining</p> <p>Remarks: VOC concentrations at Airport a very low, will begin pulse pumping in late summer 2005.</p>



5.	<p><b>Treatment Building(s)</b></p> <p><input type="checkbox"/> N/A      <input checked="" type="checkbox"/> Good condition (esp. roof and doorways)      <input type="checkbox"/> Needs repair</p> <p><input type="checkbox"/> Chemicals and equipment properly stored</p> <p>Remarks: _____</p> <p>_____</p>
6.	<p><b>Monitoring Wells</b> (pump and treatment remedy)</p> <p><input checked="" type="checkbox"/> Properly secured/locked      <input checked="" type="checkbox"/> Functioning      <input checked="" type="checkbox"/> Routinely sampled      <input checked="" type="checkbox"/> Good condition</p> <p><input checked="" type="checkbox"/> All required wells located      <input type="checkbox"/> Needs Maintenance      <input type="checkbox"/> N/A</p> <p>Remarks _____</p> <p>_____</p>
<b>D. Monitoring Data</b>	
3.	<p>Monitoring Data</p> <p><input checked="" type="checkbox"/> Is routinely submitted on time      <input checked="" type="checkbox"/> Is of acceptable quality</p>
4.	<p>Monitoring data suggests:</p> <p><input checked="" type="checkbox"/> Groundwater plume is effectively contained      <input type="checkbox"/> Contaminant concentrations are declining</p>



5.	<p><b>Treatment Building(s)</b></p> <p><input type="checkbox"/> N/A      <input checked="" type="checkbox"/> Good condition (esp. roof and doorways)      <input checked="" type="checkbox"/> Needs repair</p> <p><input type="checkbox"/> Chemicals and equipment properly stored</p> <p>Remarks: The walls and ceiling need to be cleaned of residual mold (from excessive moisture in building during summer), then repainted. Two air conditioners were installed in August (and along with the dehumidifier) provide a significant reduction in the humidity. _____</p>
6.	<p><b>Monitoring Wells</b> (pump and treatment remedy)</p> <p><input checked="" type="checkbox"/> Properly secured/locked      <input checked="" type="checkbox"/> Functioning      <input checked="" type="checkbox"/> Routinely sampled      <input checked="" type="checkbox"/> Good condition</p> <p><input checked="" type="checkbox"/> All required wells located      <input type="checkbox"/> Needs Maintenance      <input type="checkbox"/> N/A</p> <p>Remarks _____</p>
<b>D. Monitoring Data</b>	
5.	<p>Monitoring Data</p> <p><input checked="" type="checkbox"/> Is routinely submitted on time      <input checked="" type="checkbox"/> Is of acceptable quality</p>
6.	<p>Monitoring data suggests:</p> <p><input checked="" type="checkbox"/> Groundwater plume is effectively contained      <input type="checkbox"/> Contaminant concentrations are declining</p>



5.	<p><b>Treatment Building(s)</b></p> <p><input type="checkbox"/> N/A      <input checked="" type="checkbox"/> Good condition (esp. roof and doorways)      <input type="checkbox"/> Needs repair</p> <p><input type="checkbox"/> Chemicals and equipment properly stored</p> <p>Remarks: Install air conditioner to reduce the excessive humidity in building during summer.</p> <p>_____</p>
6.	<p><b>Monitoring Wells</b> (pump and treatment remedy)</p> <p><input checked="" type="checkbox"/> Properly secured/locked      <input checked="" type="checkbox"/> Functioning      <input checked="" type="checkbox"/> Routinely sampled      <input checked="" type="checkbox"/> Good condition</p> <p><input checked="" type="checkbox"/> All required wells located      <input type="checkbox"/> Needs Maintenance      <input type="checkbox"/> N/A</p> <p>Remarks _____</p> <p>_____</p>
<b>D. Monitoring Data</b>	
7.	<p>Monitoring Data</p> <p><input checked="" type="checkbox"/> Is routinely submitted on time      <input checked="" type="checkbox"/> Is of acceptable quality</p>
8.	<p>Monitoring data suggests:</p> <p><input checked="" type="checkbox"/> Groundwater plume is effectively contained      <input type="checkbox"/> Contaminant concentrations are declining</p>



5.	<b>Treatment Building(s)</b> <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition (esp. roof and doorways) <input type="checkbox"/> Needs repair <input type="checkbox"/> Chemicals and equipment properly stored Remarks: _____
6.	<b>Monitoring Wells</b> (pump and treatment remedy) <input checked="" type="checkbox"/> Properly secured/locked <input checked="" type="checkbox"/> Functioning <input checked="" type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition <input checked="" type="checkbox"/> All required wells located <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks _____ _____
<b>D. Monitoring Data</b>	
9.	Monitoring Data <input checked="" type="checkbox"/> Is routinely submitted on time <input checked="" type="checkbox"/> Is of acceptable quality
10.	Monitoring data suggests: <input checked="" type="checkbox"/> Groundwater plume is effectively contained <input type="checkbox"/> Contaminant concentrations are declining



4.	<b>Discharge Structure and Appurtenances</b> <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks: _____ _____
5.	<b>Treatment Building(s)</b> <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition (esp. roof and doorways) <input type="checkbox"/> Needs repair <input type="checkbox"/> Chemicals and equipment properly stored Remarks: _____ _____
6.	<b>Monitoring Wells</b> (pump and treatment remedy) <input checked="" type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input checked="" type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition <input checked="" type="checkbox"/> All required wells located <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks: _____ _____
<b>D. Monitoring Data</b>	
11.	Monitoring Data <input type="checkbox"/> Is routinely submitted on time <input type="checkbox"/> Is of acceptable quality
12.	Monitoring data suggests: <input type="checkbox"/> Groundwater plume is effectively contained <input checked="" type="checkbox"/> Contaminant concentrations are declining



5.	<p><b>Treatment Building(s)</b></p> <p><input type="checkbox"/> N/A      <input checked="" type="checkbox"/> Good condition (esp. roof and doorways)      <input type="checkbox"/> Needs repair</p> <p><input type="checkbox"/> Chemicals and equipment properly stored</p> <p>Remarks: The sodium polyphosphate tank will be emptied since it is not needed (it will be slowly bled into the system)_____</p>
6.	<p><b>Monitoring Wells</b> (pump and treatment remedy)</p> <p><input checked="" type="checkbox"/> Properly secured/locked      <input type="checkbox"/> Functioning      <input checked="" type="checkbox"/> Routinely sampled      <input type="checkbox"/> Good condition</p> <p><input type="checkbox"/> All required wells located      <input type="checkbox"/> Needs Maintenance      <input type="checkbox"/> N/A</p> <p>Remarks _____</p>
<b>D. Monitoring Data</b>	
13.	<p>Monitoring Data</p> <p><input checked="" type="checkbox"/> Is routinely submitted on time      <input checked="" type="checkbox"/> Is of acceptable quality</p>
14.	<p>Monitoring data suggests:</p> <p><input checked="" type="checkbox"/> Groundwater plume is effectively contained      <input type="checkbox"/> Contaminant concentrations are declining</p>



4.	<b>Discharge Structure and Appurtenances</b> <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____
5.	<b>Treatment Building(s)</b> <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition (esp. roof and doorways) <input type="checkbox"/> Needs repair <input type="checkbox"/> Chemicals and equipment properly stored Remarks: The floor needs to be cleaned of dirt and empty sample bottles need to be removed to prevent trip hazards. _____ _____
6.	<b>Monitoring Wells</b> (pump and treatment remedy) <input checked="" type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input checked="" type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition <input checked="" type="checkbox"/> All required wells located <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks _____ _____
<b>D. Monitoring Data</b>	
15.	Monitoring Data <input checked="" type="checkbox"/> Is routinely submitted on time <input checked="" type="checkbox"/> Is of acceptable quality
16.	Monitoring data suggests: <input checked="" type="checkbox"/> Groundwater plume is effectively contained <input type="checkbox"/> Contaminant concentrations are declining

<b>VIII. GROUNDWATER REMEDIES</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A    4/7/05	
<b>A. System OU III Sr-90 BGRR/WCF (Bldg. 855)</b> Inspection attendees include V. Racaniello, G. Penny, T. Burke, K. Klaus, E. Kramer, K. Conkling, C. Ogeka, R. Howe _____	
1.	<b>Construction Complete/System Operating</b> <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No Remarks: Construction is complete, in start-up testing phase, will begin normal operations soon.
<b>B. Groundwater Extraction Wells, Pumps, and Pipelines</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A	
1.	<b>Pumps, Wellhead Plumbing, and Electrical</b> <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> All required wells properly operating <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks _____ _____
2.	<b>Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances</b> <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks: _____
3.	<b>Spare Parts and Equipment</b> <input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided Remarks _____ _____
<b>C. Treatment System</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A	
1.	<b>Treatment Train</b> (Check components that apply) <input type="checkbox"/> Metals removal <input type="checkbox"/> Oil/water separation <input type="checkbox"/> Bioremediation <input checked="" type="checkbox"/> Air stripping <input type="checkbox"/> Carbon adsorbers <input checked="" type="checkbox"/> Filters: ion exchange ____ <input type="checkbox"/> Additive ( <i>e.g.</i> , chelation agent, flocculent) _____ <input type="checkbox"/> Others _____ <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance <input checked="" type="checkbox"/> Sampling ports properly marked and functional <input checked="" type="checkbox"/> Sampling/maintenance log displayed and up to date <input checked="" type="checkbox"/> Equipment properly identified <input type="checkbox"/> Quantity of groundwater treated annually _____ <input type="checkbox"/> Quantity of surface water treated annually _____ Remarks: Need to install sampling port before air stripper._ _____
2.	<b>Electrical Enclosures and Panels</b> (properly rated and functional) <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____
3.	<b>Tanks, Vaults, Storage Vessels</b> <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input checked="" type="checkbox"/> Proper secondary containment <input type="checkbox"/> Needs Maintenance Remarks _____ _____
4.	<b>Discharge Structure and Appurtenances</b> <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____

5.	<b>Treatment Building(s)</b> <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition (esp. roof and doorways) <input type="checkbox"/> Needs repair <input type="checkbox"/> Chemicals and equipment properly stored Remarks _____ _____
6.	<b>Monitoring Wells</b> (pump and treatment remedy) <input checked="" type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input checked="" type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> All required wells located <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks _____ _____
<b>D. Monitoring Data</b>	
17.	Monitoring Data <input checked="" type="checkbox"/> Is routinely submitted on time <input checked="" type="checkbox"/> Is of acceptable quality
18.	Monitoring data suggests: <input type="checkbox"/> Groundwater plume is effectively contained <input type="checkbox"/> Contaminant concentrations are declining

<b>E. Monitored Natural Attenuation</b>	
1.	<b>Monitoring Wells</b> (natural attenuation remedy) <input checked="" type="checkbox"/> Properly secured/locked <input checked="" type="checkbox"/> Functioning <input checked="" type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition <input checked="" type="checkbox"/> All required wells located <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks: A portion of each groundwater remedy relies on some natural attenuation. _____
<b>IX. OTHER REMEDIES</b>	
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.	
<b>X. OVERALL OBSERVATIONS</b>	
<b>A.</b>	<b>Implementation of the Remedy</b>
Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).  With the exception of remaining soil excavation at OU I and the BGRR pile and bioshield removal, all soil, sediment, and groundwater remedies for the seven RODs at the site have been implemented and are functioned as designed. This includes the excavation and off-site disposal of contaminated soils, sediments, tanks, as well as the installation and operations initiated for all groundwater treatment systems. All of the remedies are being implemented in accordance with the RODs and the ESD. The remedies are expected to be protective upon attainment of soil cleanup goals once excavation is complete, and groundwater cleanup goals.  _____	
<b>B.</b>	<b>Adequacy of O&amp;M</b>
Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.  The VOC treatment systems operated without any significant down time or issues over the last eight years and have consistently met the state equivalency discharge requirements (although there have been a few pH excursions due to the natural groundwater conditions). The systems have been physically inspected typically on a daily basis. However, the frequency of physical inspections will generally be reduced starting in 2005 due to the significant operating history, the increase in the number of systems off of BNL property, and the availability of wireless system monitoring/alarms.  _____	
<b>C.</b>	<b>Early Indicators of Potential Remedy Problems</b>
Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.  <ul style="list-style-type: none"> <li>• See above. See Five Year Review Section 7.0. To reduce the frequency of system downtime for the Chemical Holes Sr-90 system, the process piping is being redesigned to bypass the holding tanks and use only the extraction well pump to process the water.</li> </ul> _____	

**D. Opportunities for Optimization**

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.  
Opportunities are routinely identified. See Five Year Review Section 7.0\_\_\_\_\_

\_\_\_\_\_